

Chief, USSR Branch, D/A

16 May 1958

THRU : Chief, Analysis Division

Chief, Materials Division, ORR

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Comments on Proposed Sample of Mining Machinery Items

REF : Your memorandum, dated 9 May 1958, on above subject.

1. The Materials Division is concerned with mining machinery in place and therefore with the technological and other characteristics of such machinery, but is not responsible for mining machinery production per se; as you know this responsibility resides in D/I. Your memorandum asked for comments on (1) the representativeness of items selected for the sample, (2) important items missing from the sample which should be included, (3) the adequacy of Soviet specifications as a basis for selecting comparable US items, and (4) US models of machinery which are known to be direct copies of or are directly comparable to the Soviet models. Given our responsibilities, we are presumably not in the best position to supply 1 and 2 above, but can supply 3 and 4. We have attempted, however, to give you all the information available to us, and hope that the attached comments will prove useful.

2. The comments attached are unclassified.

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## Comments on Proposed Sample of Mining Machinery Items

1. The equipment listed is applicable mainly to coal mines, principally in underground operations. The pneumatic drills appear to be too light for hard rock mining. No consideration has been given to such hard rock mining equipment as jumbo assemblies, slusher hoists, hard rock drill bits, jet piercers or air compressors.

2. It is suggested that EKO-8 excavators be added to the sample in order to make the list more representative. The EKO-8 is one of the more recent types of excavators developed by the Uralmash factory. It is an electrically operated, caterpillar-treaded machine which was designed for heavy work in strip mining operations. The total weight of the EKO-8 has been reported as 330 tons; the total capacity of the motors operating the turning mechanism is 200 kw; total capacity of the motors operating the lifting wench is 400 kw; maximum lifting capacity is 80 tons; and the length of the boom is 12 meters. The excavator has electrically operated controls and can be equipped to handle scoops with capacities of 6, 8, or 10 cubic meters. No information on ruble prices for the EKO-8 is available. US excavators which are believed to be similar in some aspects to the EKO-8 are the Marion 191-M and the Bucyrus-erie 150-B.

3. The Soviet coal mining industry, in order to meet the demands imposed by extreme variations in mining conditions in the coal fields of the USSR has found it necessary to employ a greater variety of coal mining equipment than is used by the US coal mining industry. Certain types of equipment i.e. loading machines, locomotives, pit cars, pumps and drilling equipment, are manufactured in sufficiently similar models in the two countries to permit direct comparison. On-the-other-hand, the underground extractive equipment used in the USSR and the US is not comparable since Soviet models, in general, are designed for "long-wall" mining while US models are designed for "short-wall" operations. Although both the model KM-2 and the model GIK-3M cutting machines have been manufactured and used in large numbers in the USSR coal mines, the latter is now considered to be obsolete and is being replaced by the model MV-60 which was designed about 1950. Soviet combines, which simultaneously cut and load coal, are manufactured in a variety of models and sizes, however, the proposed list of equipment includes only the Gorniak 1 model. The Donets combine, which is produced in at least 6 models, is by far the most important Soviet combine. While specifications and prices are undoubtedly available for the Donets combines, these machines and US machines are not comparable. Most of the coal-loading machines used in the USSR coal mines are model S-153. The S-153 is almost identical to the JU-5 or JU-7 manufactured by the Joy Manufacturing Co. of Pittsburgh, Pennsylvania.

4. The majority of rock-loading machines used in the USSR are either the EPM-1 (EPM-1M is probably an improved model) or the PML-5 (pneumatic type.) Both of these machines are similar to models manufactured by Einco Manufacturing Company.

Comments on Proposed Sample of Mining Machinery Items (continued)

5. The Soviets are producing large numbers of conveyors. It should be possible to obtain specifications and prices for Soviet belt conveyors which, in general, are similar to US models.
6. We know of no other comparison studies that are being made of US and Soviet mining machinery.